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# LCD TV

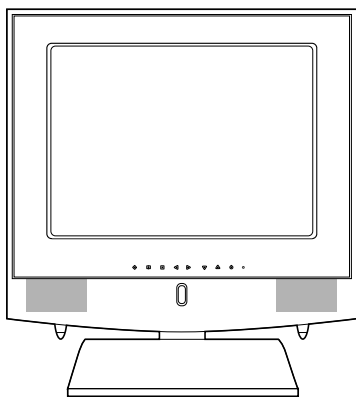
# SERVICE MANUAL

**CHASSIS : ML-012A**

**MODEL : LN-15A15**

**CAUTION**

BEFORE SERVICING THE CHASSIS,  
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



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# SAFETY PRECAUTIONS

## IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by  $\Delta$  in the Schematic Diagram and Replacement Parts List.

It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards.

Do not modify the original design without permission of manufacturer.

### General Guidance

An **Isolation Transformer should always be used** during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and it's components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Due to high vacuum and large surface area of picture tube, extreme care should be used in **handling the Picture Tube**. Do not lift the Picture tube by it's Neck.

### Before returning the receiver to the customer,

always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

### Leakage Current Cold Check(Antenna Cold Check)

With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.

If the exposed metallic part has a return path to the chassis, the measured resistance should be between  $1M\Omega$  and  $5.2M\Omega$ .

When the exposed metal has no return path to the chassis the reading must be infinite.

An other abnormality exists that must be corrected before the receiver is returned to the customer.

### Leakage Current Hot Check (See below Figure)

Plug the AC cord directly into the AC outlet.

#### Do not use a line Isolation Transformer during this check.

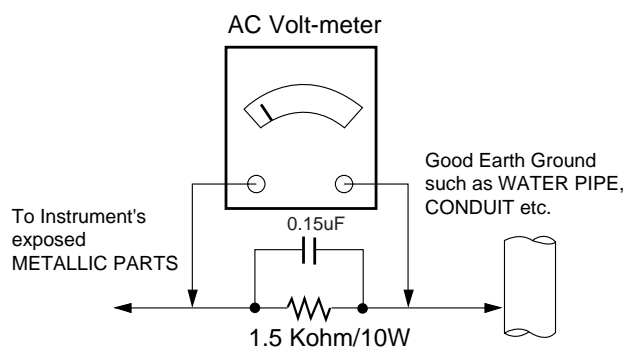
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.

Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which is corresponds to 0.5mA.

In case any measurement is out of the limits sepcified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

### Leakage Current Hot Check circuit



# SERVICING PRECAUTIONS

**CAUTION:** Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the **SAFETY PRECAUTIONS** on page 3 of this publication.

**NOTE:** If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

## General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
  - a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
  - b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
  - c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.

**CAUTION:** A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

- d. Discharging the picture tube anode.
2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe. Do not test high voltage by "drawing an arc".
  3. Discharge the picture tube anode only by (a) first connecting one end of an insulated clip lead to the degaussing or kine aquadag grounding system shield at the point where the picture tube socket ground lead is connected, and then (b) touch the other end of the insulated clip lead to the picture tube anode button, using an insulating handle to avoid personal contact with high voltage.
  4. Do not spray chemicals on or near this receiver or any of its assemblies.
  5. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable nonabrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)

**CAUTION:** This is a flammable mixture.

Unless specified otherwise in this service manual, lubrication of contacts is not required.

6. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
7. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
8. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead. Always remove the test receiver ground lead last.
9. *Use with this receiver only the test fixtures specified in this service manual.*

**CAUTION:** Do not connect the test fixture ground strap to any heatsink in this receiver.

## Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called *Electrostatically Sensitive (ES) Devices*. Examples of typical ES devices are integrated circuits and some field-effect

transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

**CAUTION:** Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

## General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range of 500°F to 600°F.
  2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
  3. Keep the soldering iron tip clean and well tinned.
  4. Thoroughly clean the surfaces to be soldered. Use a mall wirebrush (0.5 inch, or 1.25cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
  5. Use the following unsoldering technique
    - a. Allow the soldering iron tip to reach normal temperature. (500°F to 600°F)
    - b. Heat the component lead until the solder melts.
    - c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
- CAUTION:** Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique.
    - a. Allow the soldering iron tip to reach a normal temperature (500°F to 600°F)
    - b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.

- c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.

**CAUTION:** Work quickly to avoid overheating the circuit board printed foil.

- d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

### IC Remove/Replacement

Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

#### Removal

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

#### Replacement

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

### "Small-Signal" Discrete Transistor

#### Removal/Replacement

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

### Power Output, Transistor Device

#### Removal/Replacement

1. Heat and remove all solder from around the transistor leads.
2. Remove the heatsink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heatsink.

### Diode Removal/Replacement

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

### Fuse and Conventional Resistor

#### Removal/Replacement

1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.
3. Solder the connections.

**CAUTION:** Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

### Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

#### At IC Connections

To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. Carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

#### At Other Connections

Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.

**CAUTION:** Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.

# ADJUSTMENT INSTRUCTION

## 1. Application Object

This instruction is for the application to the LCD TV.

## 2. Notes

- (1) This set uses an adapter, so connect the adapter and the set correctly before adjustment.
  - (2) The adjustment must be performed under the correct sequence.
  - (3) The adjustment must be performed in the circumstance of  $25\pm5^{\circ}\text{C}$  of temperature and  $65\pm10\%$  of relative humidity if there is no specific designation.
  - (4) The input voltage of the receiver must keep 100~220V, 50/60Hz in adjusting.
  - (5) The set must be operated for 30 minutes preliminarily before adjustment if there is no specific designation.
- \* 'Heat Run' must be performed with the full white signal or TV noise signal in the internal part of the set.
- \* The time for 'Heat Run' can be changed owing to production plan.

## 3. PC Input Mode Adjustment

### 3-1. Required Test Equipment

- (1) A pattern generator being in proportion to 801GF(or VG819) ; Gray Pattern of 16(11) tones
- (2) A Service remote control

### 3-2. Preparation for Adjustment

- (1) Perform 'Heat Run' for more than 30 minutes in white pattern.
- (2) Connect the signal of pattern generator with LCD TV of PC Input Jack(D-Sub).

### 3-3. Auto Gray Adjustment

- (1) Apply the gray signal of XGA(1024X768) 16 tones(H: 31-214 Pattern, V: 60-84 Pattern) by using 801GF.  
Or apply the gray signal of Pattern Generator 16(11) tones by using VG819.
- (2) Pressing ADJ Key(or SVC Key) of Remote Control for Adjustment, adjust the Auto gray from 0 to 1 by using Volume + Key.

## 3-4. Position of Mode Adjustment

Timing of Mode Table

\* H[dot]/V[line]

Mode	VGA-60	VGA-67	VGA-72	VGA-75	VGA-85	SVGA-56	SVGA-60	SVGA-72
H_Total	800	864	832	840	832	1024	1056	1040
H_Display	640	640	656	640	640	800	800	800
H_Blanking	160	224	176	200	192	224	256	240
H_Sync	96	64	40	64	56	72	128	120
H Polarity	NEG.	NEG.	NEG.	NEG.	NEG.	POS	POS	POS
H_Bp	48	96	120	120	80	128	88	64
H_Fp	16	64	16	16	56	24	40	56
H-Freq[KHz]	31.469	35.0	37.861	37.5	43.269	35.156	37.879	48.077
/Clk[MHz]	25.175	30.24	31.5	31.5	36.0	36.0	40.0	50.0
V_Total	525	525	520	500	509	625	628	666
V_Display	480	480	496	480	480	600	600	600
V_Blanking	45	45	24	20	29	25	28	66
V_Sync	2	3	3	3	3	2	4	6
V Polarity	NEG	NEG	NEG	NEG	NEG	POS	POS	POS
V_Bp	33	39	20	16	25	22	23	23
V_Fp	10	3	1	1	1	1	1	37

Mode	SVGA-75	SVGA-85	XGA-60	XGA-70	XGA-75	MAC-75	XGA-85
H_Total	1056	1048	1344	1328	1312	1152	1376
H_Display	800	800	1024	1024	1024	832	1024
H_Blanking	256	248	320	304	288	320	352
H_Sync	80	64	136	136	96	64	96
H Polarity	POS	POS	NEG		POS	NEG	POS
H_Bp	160	152	136	144	176	224	208
H_Fp	16	32	160	24	16	32	48
H-Freq[KHz]	46.875	53.674	48.363	56.476	60.023	49.725	68.677
/Clk[MHz]	49.5	56.25	65.0	75.0	78.75	57.283	84.997
V_Total	625	631	806	806	800	667	808
V_Display	600	600	768	768	768	624	768
V_Blanking	25	31	38	38	32	43	40
V_Sync	3	3	6	6	3	3	3
V Polarity	POS	POS	NEG	NEG	POS	NEG	POS
V_Bp	21	27	29	29	28	39	36
V_Fp	1	1	3	3	1	1	1

Mode	VGA350-70	VGA350-85	VGA400-70	VGA400-85
H_Total	800	832	800	832
H_Display	640	640	640	640
H_Blanking	160	192	160	192
H_Sync	96	64	96	64
H Polarity	POS	POG	NEG	NEG
H_Bp	48	96	48	96
H_Fp	16	32	16	32
H-Freq[KHz]	31.468	37.86	31.46	37.86
/Clk[MHz]	25.17	31.47	25.17	31.5
V_Total	449	445	449	445
V_Display	350	350	400	400
V_Blanking	99	95	49	45
V_Sync	2	3	2	3
V Polarity	NEG	NEG	POS	POS
V_Bp	60	60	35	41
V_Fp	37	32	12	1

## 4. EDID(The Extended Display Identification Data)

EDID Table

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	00	FF	FF	FF	FF	FF	FF	00	30	E5	D7	3A	01	00	00	00
10	00	0B	01	01	78	1F	17	70	E8	C3	A0	A3	54	4C	97	24
20	14	50	54	BF	E8	80	31	59	3B	D9	45	59	61	59	71	59
30	81	40	81	80	01	01	10	0E	01	01	01	01	01	01	01	01
40	01	01	01	01	01	01	01	01	F9	15	01	01	01	01	01	01
50	01	01	01	01	01	01	01	01	01	01	64	19	00	40	41	00
60	26	30	18	88	36	00	0E	C3	10	00	00	1E	00	00	00	FD
70	00	32	55	1E	46	0D	00	0A	20	20	20	20	20	20	00	C8

## 5. Option1 data(200PR~A2 ST:1bit,SYS:2bit)

OPTION Data	200PR	TEXT	I/II SV	TOP	SCART	A2 ST	SYS
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1
2	0	0	0	0	0	0	2
3	0	0	0	0	0	0	3
4	0	0	0	0	0	1	0
5	0	0	0	0	0	1	1
6	0	0	0	0	0	1	2
7	0	0	0	0	0	1	3
8	0	0	0	0	1	0	0
9	0	0	0	0	1	0	1
10	0	0	0	0	1	0	2
11	0	0	0	0	1	0	3
12	0	0	0	0	1	1	0
13	0	0	0	0	1	1	1
14	0	0	0	0	1	1	2
15	0	0	0	0	1	1	3
16	0	0	0	1	0	0	0
17	0	0	0	1	0	0	1
18	0	0	0	1	0	0	2
19	0	0	0	1	0	0	3
20	0	0	0	1	0	1	0
21	0	0	0	1	0	1	1
22	0	0	0	1	0	1	2
23	0	0	0	1	0	1	3
24	0	0	0	1	1	0	0
25	0	0	0	1	1	0	1
26	0	0	0	1	1	0	2
27	0	0	0	1	1	0	3
28	0	0	0	1	1	1	0
29	0	0	0	1	1	1	1
30	0	0	0	1	1	1	2
31	0	0	0	1	1	1	3

OPTION Data	200PR	TEXT	I/II SV	TOP	SCART	A2 ST	SYS
32	0	0	1	0	0	0	0
33	0	0	1	0	0	0	1
34	0	0	1	0	0	0	2
35	0	0	1	0	0	0	3
36	0	0	1	0	0	1	0
37	0	0	1	0	0	1	1
38	0	0	1	0	0	1	2
39	0	0	1	0	0	1	3
40	0	0	1	0	1	0	0
41	0	0	1	0	1	0	1
42	0	0	1	0	1	0	2
43	0	0	1	0	1	0	3
44	0	0	1	0	1	1	0
45	0	0	1	0	1	1	1
46	0	0	1	0	1	1	2
47	0	0	1	0	1	1	3
48	0	0	1	1	0	0	0
49	0	0	1	1	0	0	1
50	0	0	1	1	0	0	2
51	0	0	1	1	0	0	3
52	0	0	1	1	0	1	0
53	0	0	1	1	0	1	1
54	0	0	1	1	0	1	2
55	0	0	1	1	0	1	3
56	0	0	1	1	1	0	0
57	0	0	1	1	1	0	1
58	0	0	1	1	1	0	2
59	0	0	1	1	1	0	3
60	0	0	1	1	1	1	0
61	0	0	1	1	1	1	1
62	0	0	1	1	1	1	2
63	0	0	1	1	1	1	3



OPTION Data	200PR	TEXT	I/II SV	TOP	SCART	A2 ST	SYS
64	0	1	0	0	0	0	0
65	0	1	0	0	0	0	1
66	0	1	0	0	0	0	2
67	0	1	0	0	0	0	3
68	0	1	0	0	0	1	0
69	0	1	0	0	0	1	1
70	0	1	0	0	0	1	2
71	0	1	0	0	0	1	3
72	0	1	0	0	1	0	0
73	0	1	0	0	1	0	1
74	0	1	0	0	1	0	2
75	0	1	0	0	1	0	3
76	0	1	0	0	1	1	0
77	0	1	0	0	1	1	1
78	0	1	0	0	1	1	2
79	0	1	0	0	1	1	3
80	0	1	0	1	0	0	0
81	0	1	0	1	0	0	1
82	0	1	0	1	0	0	2
83	0	1	0	1	0	0	3
84	0	1	0	1	0	1	0
85	0	1	0	1	0	1	1
86	0	1	0	1	0	1	2
87	0	1	0	1	0	1	3
88	0	1	0	1	1	0	0
89	0	1	0	1	1	0	1
90	0	1	0	1	1	0	2
91	0	1	0	1	1	0	3
92	0	1	0	1	1	1	0
93	0	1	0	1	1	1	1
94	0	1	0	1	1	1	2
95	0	1	0	1	1	1	3
96	0	1	1	0	0	0	0
97	0	1	1	0	0	0	1
98	0	1	1	0	0	0	2
99	0	1	1	0	0	0	3
100	0	1	1	0	0	1	0
101	0	1	1	0	0	1	1
102	0	1	1	0	0	1	2
103	0	1	1	0	0	1	3
104	0	1	1	0	1	0	0
105	0	1	1	0	1	0	1
106	0	1	1	0	1	0	2
107	0	1	1	0	1	0	3
108	0	1	1	0	1	1	0
109	0	1	1	0	1	1	1

OPTION Data	200PR	TEXT	I/II SV	TOP	SCART	A2 ST	SYS
110	0	1	1	0	1	1	2
111	0	1	1	0	1	1	3
112	0	1	1	1	0	0	0
113	0	1	1	1	0	0	1
114	0	1	1	1	0	0	2
115	0	1	1	1	0	0	3
116	0	1	1	1	0	1	0
117	0	1	1	1	0	1	1
118	0	1	1	1	0	1	2
119	0	1	1	1	0	1	3
120	0	1	1	1	1	0	0
121	0	1	1	1	1	0	1
122	0	1	1	1	1	0	2
123	0	1	1	1	1	0	3
124	0	1	1	1	1	1	0
125	0	1	1	1	1	1	1
126	0	1	1	1	1	1	2
127	0	1	1	1	1	1	3
128	1	0	0	0	0	0	0
129	1	0	0	0	0	0	1
130	1	0	0	0	0	0	2
131	1	0	0	0	0	0	3
132	1	0	0	0	0	1	0
133	1	0	0	0	0	1	1
134	1	0	0	0	0	1	2
135	1	0	0	0	0	1	3
136	1	0	0	0	1	0	0
137	1	0	0	0	1	0	1
138	1	0	0	0	1	0	2
139	1	0	0	0	1	0	3
140	1	0	0	0	1	1	0
141	1	0	0	0	1	1	1
142	1	0	0	0	1	1	2
143	1	0	0	0	1	1	3
144	1	0	0	1	0	0	0
145	1	0	0	1	0	0	1
146	1	0	0	1	0	0	2
147	1	0	0	1	0	0	3
148	1	0	0	1	0	1	0
149	1	0	0	1	0	1	1
150	1	0	0	1	0	1	2
151	1	0	0	1	0	1	3
152	1	0	0	1	1	0	0
153	1	0	0	1	1	0	1
154	1	0	0	1	1	0	2
155	1	0	0	1	1	0	3

OPTION Data	200PR	TEXT	I/II SV	TOP	SCART	A2 ST	SYS
156	1	0	0	1	1	1	0
157	1	0	0	1	1	1	1
158	1	0	0	1	1	1	2
159	1	0	0	1	1	1	3
160	1	0	1	0	0	0	0
161	1	0	1	0	0	0	1
162	1	0	1	0	0	0	2
163	1	0	1	0	0	0	3
164	1	0	1	0	0	1	0
165	1	0	1	0	0	1	1
166	1	0	1	0	0	1	2
167	1	0	1	0	0	1	3
168	1	0	1	0	1	0	0
169	1	0	1	0	1	0	1
170	1	0	1	0	1	0	2
171	1	0	1	0	1	0	3
172	1	0	1	0	1	1	0
173	1	0	1	0	1	1	1
174	1	0	1	0	1	1	2
175	1	0	1	0	1	1	3
176	1	0	1	1	0	0	0
177	1	0	1	1	0	0	1
178	1	0	1	1	0	0	2
179	1	0	1	1	0	0	3
180	1	0	1	1	0	1	0
181	1	0	1	1	0	1	1
182	1	0	1	1	0	1	2
183	1	0	1	1	0	1	3
184	1	0	1	1	1	0	0
185	1	0	1	1	1	0	1
186	1	0	1	1	1	0	2
187	1	0	1	1	1	0	3
188	1	0	1	1	1	1	0
189	1	0	1	1	1	1	1
190	1	0	1	1	1	1	2
191	1	0	1	1	1	1	3
192	1	1	0	0	0	0	0
193	1	1	0	0	0	0	1
194	1	1	0	0	0	0	2
195	1	1	0	0	0	0	3
196	1	1	0	0	0	1	0
197	1	1	0	0	0	1	1
198	1	1	0	0	0	1	2
199	1	1	0	0	0	1	3
200	1	1	0	0	1	0	0
201	1	1	0	0	1	0	1

OPTION Data	200PR	TEXT	I/II SV	TOP	SCART	A2 ST	SYS
202	01	1	0	0	1	0	2
203	1	1	0	0	1	0	3
204	1	1	0	0	1	1	0
205	1	1	0	0	1	1	1
206	1	1	0	0	1	1	2
207	1	1	0	0	1	1	3
208	1	1	0	1	0	0	0
209	1	1	0	1	0	0	1
210	1	1	0	1	0	0	2
211	1	1	0	1	0	0	3
212	1	1	0	1	0	1	0
213	1	1	0	1	0	1	1
214	1	1	0	1	0	1	2
215	1	1	0	1	0	1	3
216	1	1	0	1	1	0	0
217	1	1	0	1	1	0	1
218	1	1	0	1	1	0	2
219	1	1	0	1	1	0	3
220	1	1	0	1	1	1	0
221	1	1	0	1	1	1	1
222	1	1	0	1	1	1	2
223	1	1	0	1	1	1	3
224	1	1	1	0	0	0	0
225	1	1	1	0	0	0	1
226	1	1	1	0	0	0	2
227	1	1	1	0	0	0	3
228	1	1	1	0	0	1	0
229	1	1	1	0	0	1	1
230	1	1	1	0	0	1	2
231	1	1	1	0	0	1	3
232	1	1	1	0	1	0	0
233	1	1	1	0	1	0	1
234	1	1	1	0	1	0	2
235	1	1	1	0	1	0	3
236	1	1	1	0	1	1	0
237	1	1	1	0	1	1	1
238	1	1	1	0	1	1	2
239	1	1	1	0	1	1	3
240	1	1	1	1	0	0	0
241	1	1	1	1	0	0	1
242	1	1	1	1	0	0	2
243	1	1	1	1	0	0	3
244	1	1	1	1	0	1	0
245	1	1	1	1	0	1	1
246	1	1	1	1	0	1	2
247	1	1	1	1	0	1	3

OPTION Data	200PR	TEXT	I/II SV	TOP	SCART	A2 ST	SYS
248	1	1	1	1	1	0	0
249	1	1	1	1	1	0	1
250	1	1	1	1	1	0	2
251	1	1	1	1	1	0	3
252	1	1	1	1	1	1	0
253	1	1	1	1	1	1	1
254	1	1	1	1	1	1	2
255	1	1	1	1	1	1	3

## 6. Option2 data(ACMS~BBACK:1bit,LANG:3bit)

OPTION Data	ACMS	VOL	HIDEV
0	0	0	0
1	0	0	1
2	0	1	0
3	0	1	1
4	1	0	0
5	1	0	1
6	1	1	0
7	1	1	1

## 7. Option3 data(IIC AFT~CH+AU:1bit)

OPTION Data	IIC AFT	MD SAVE	MONO	CH+AUS
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

# TROUBLESHOOTING

## 1. General Features

No.	Symptom	Cause	Check Point
1	Button doesn't function	1) Broken components and soldering of them 2) P2 connector error	1) Check button with eyes Check and repair soldering 2) Check and repair the P2 connector
2	No screen	Input error of inverter connector	1) Bend the pin legs of P1 connector -> recheck them 2) Check and repair the IC804,805 SI4925
		P902 and Pin 21 connector being slipped out	1) Check and fix P902 connector 2) Check and fix the components at P902 LCD module and at main board. 3) Check Pin21.
		Cracked components and soldering at tuner board	1) Check and repair tuner board and main board 2) Solder Q102.
3	Dark screen	1) Defective LCD lamp 2) Defective inverter 3) Input error of inverter connector	1) Replace the inverter 2) Replace the LCD lamp 3) Check the connector input.

## 2. PC Mode

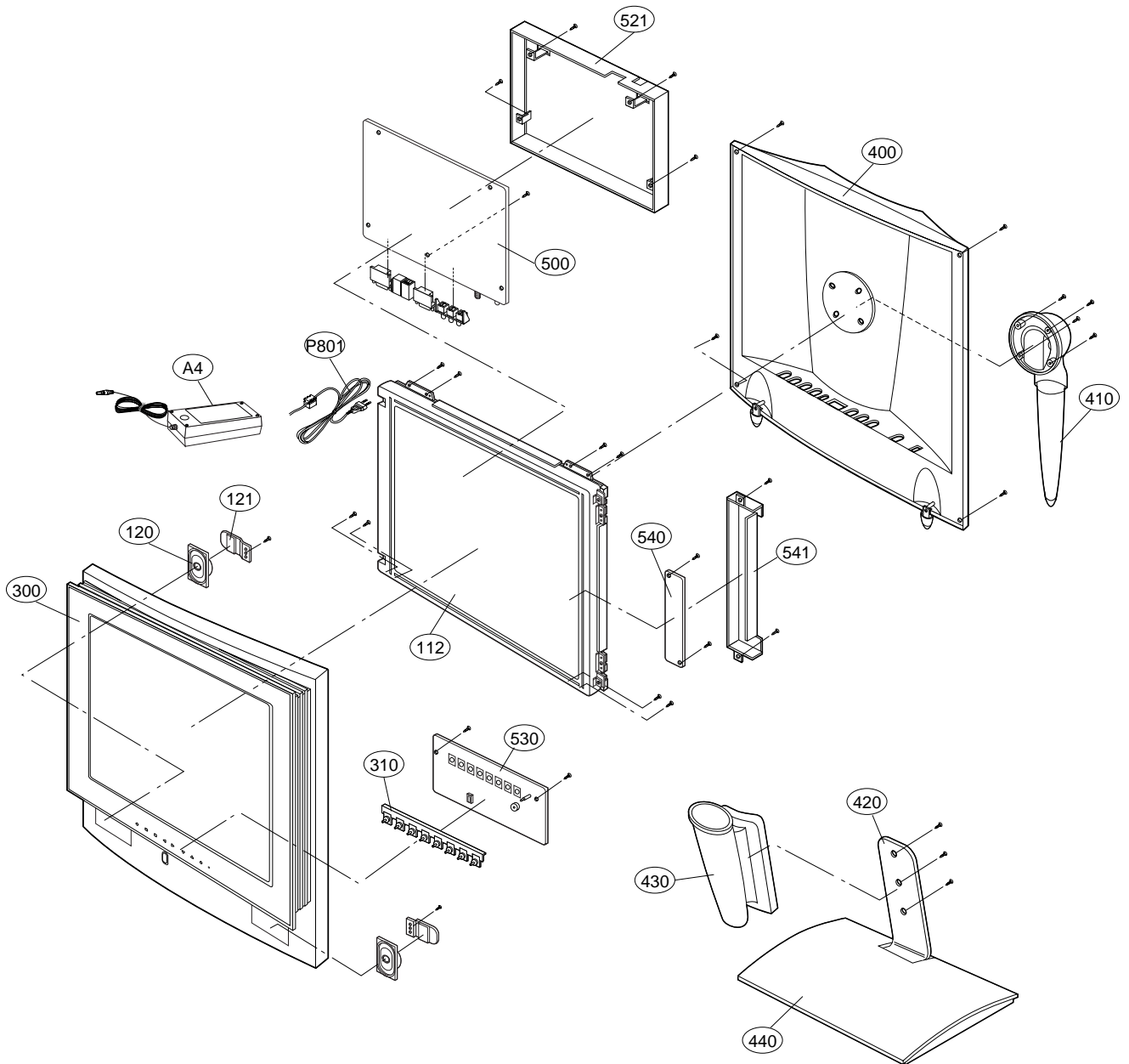
No.	Symptom	Cause	Check Point
4	Screen noise	Clock or phase being not able to be adjusted	1) Resettig is needed according to the video card of each PC 2) Horizontal noise : adjust phase until no horizontal noise occurs 3) Vertical noise : adjust clock in menu until no vertical noise occurs
5	Screen position error	Screen position error horizontally or vertically	1) Play the Auto Configure in Menu. 2) Adjust horizontal and vertical position until the screen displays normally
6	Color beat noise	Soldering D-SUB Jack of JA202 and IC202.	Recheck and repair JA202,IC202

## 3. TV and external input

No.	Symptom	Cause	Check Point
7	No sound - Speaker - Earphone	Defective Reset IC of IC603 Defective MSP3440G of IC601 Defective B+(8V,5V) of IC604,605.	1) Check volume and speaker - Sound comes out only when being inputted into Audio L/R 2) Check after replacing IC603 3) Replace IC601 4) Check and replace B+ of IC604,605.
8	Video color beat noise	Earphone shield case being touched	Check the mold of shield and JA203, Replace shield case
		Soldering IC301 and IC912	Re-soldering

## MEMO

# EXPLODED VIEW



## EXPLODED VIEW PARTS LIST

No.	PART NO.	DESCRIPTION
112	6304FLP006B	LCD,LC151X01-C3P1 LG PHILPS TFT CO
120	6400VA0017A	SPEAKER,GENERAL T401SX-095K14 LG C&D 8 OHM 1.0
121	4950V00010A	METAL,HOLDER SPK SBHG NON
300	3091V00226R	CABINET ASSEMBLY,LN-15A15 ACBLKC ML012A
310	5020V00360B	BUTTON,CONTROL RUBBER SET
400	3809V00275J	BACK COVER ASSEMBLY
410	4950V00025B	METAL,TITLING ASSY
420	4950V00006A	METAL,STAND SECC
430	4930V00103B	HOLDER,STAND ABS AF-303S(04431B,WHITE
440	3550V00081A	COVER,BASE LN-15A1
500	3141VMNC22M	CHASSIS ASSEMBLY,MAIN ML012A
530	6871VSMA56A	PCB ASSEMBLY,SUB CONT ML-012A LE-15A15
540	6633VA0003K	INVERTER ASSEMBLY,12VOLT VOLT ECT ALPS4LAMP
541	4814V00228A	SHIELD,CASE INVERTER ET-C 32X203 400

# REPLACEMENT PARTS LIST

For Capacitor & Resistors, the characters at 2nd and 3rd digit in the P/No. means as follows;

CC, CX, CK, CN : Ceramic	RD : Carbon Film
CQ : Polyester	RS : Metal Oxide Film
CE : Electrolytic	RN : Metal Film
	RF : Fusible

RUN DATE : 2002.7.2

LOCA. NO	PART NO	DESCRIPTION
<b>IC</b>		
IC1	0IZZVC0042F	M37136EFSP 52P ST ML-012A
IC2	0IAL241600B	AT24C16-10PC 8D EEPROM 16K
IC3	0IFA752700A	KA75270Z 3 TP RE-SET IC MC-007
IC4	0IMCRNS002A	LM1881M NATIONAL SEMICONDUCTOR
IC201	0IAL242110A	AT24C21-10SI-2.5 8P,SOP TP 1K
IC202	0IPH740800M	74F08D 14P SOIC R/TP QUAD 2-IN
IC301	0IIT323000D	VPC3230D QA B4 80P QFP TRAY SO
IC302	0IHY100100A	LGTV1001 64P QFP BK PROGRESSIV
IC601	0IMCRMN014A	MSP3440G QA B8 V3 MICRONAS 80
IC602	0ISA428200A	LA4282 12S 2CHX10W AUDIO AMP
IC603	0IKE704200J	KIA7042AF SOT-89 TP 4.2V VOLTA
IC604	0IMCRFA009A	KA78M08RTM, FAIRCHILD 2P D-PAK
IC605	0IMCRFA008A	KA78M05RTM, FAIRCHILD 2P D-PAK
IC701	0ISG747410A	M74HC74M1R 14P,SOP TP DUAL DTY
IC702	0ISG747410A	M74HC74M1R 14P,SOP TP DUAL DTY
IC801	0ITC786000A	SI786 28SSOP TP DUAL-OUTPUT PO
IC901	0IMCRG2004B	JAGASM A4 SAGE 352BA
IC902	0IPH806520A	80C652 40 PLCC ST 8-BIT MICROC
IC903	0IPH743730E	74HCT373D 20SOP R/TP ADDRESS L
IC904	0IZZVC0041A	M27C512_10F1 DIP BK
IC905	0ISS416162C	K4S161622E-TC80 50TSOP R/TP SD
IC906	0ISS416162C	K4S161622E-TC80 50TSOP R/TP SD
IC907	0IPH740400G	74HC04D HEX INVERTER 14P,SOP T
IC908	0IAL241610A	AT24C16N-10SI 8P SOIC ST EEPRO
IC909	0IMCRFA020A	RC1587DT_36 FAIRCHIL
IC914	0IMCRTH001A	THC63LVDM83R THINE E
<b>TRANSISTOR</b>		
IC802	0TFVI80001A	FETS,VISHAY SI4808DY R/TP SO-8 30V
IC803	0TFVI80001A	FETS,VISHAY SI4808DY R/TP SO-8 30V
IC804	0TFVI80005A	FETS,VISHAY SI4963DY R/TP SO-8 -20V
IC805	0TF492509AA	FET,SI4925DY TP TEMIC 30V 6.1A SO
IC913	0TF492509AA	FET,SI4925DY TP TEMIC 30V 6.1A SO
Q3	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q5	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q102	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q204	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q205	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q206	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q207	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q208	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q209	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q210	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q301	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q605	0TR150400BA	CHIP 2SA1504S(ASY) KEC
Q702	0TR388009BB	KTC3880-Y TP KEC SOT23 CHIP
Q703	0TR388009BB	KTC3880-Y TP KEC SOT23 CHIP

LOCA. NO	PART NO	DESCRIPTION
Q704	0TR388009BB	KTC3880-Y TP KEC SOT23 CHIP
Q705	0TR388009BB	KTC3880-Y TP KEC SOT23 CHIP
Q706	0TR388009BB	KTC3880-Y TP KEC SOT23 CHIP
Q707	0TR388009BB	KTC3880-Y TP KEC SOT23 CHIP
Q708	0TR388009BB	KTC3880-Y TP KEC SOT23 CHIP
Q709	0TR388009BB	KTC3880-Y TP KEC SOT23 CHIP
Q711	0TR150400BA	CHIP 2SA1504S(ASY) KEC
Q712	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q713	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q714	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q715	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q720	0TR102009AG	CHIP KRC102S SOT-23 TP KEC
Q721	0TR102009AG	CHIP KRC102S SOT-23 TP KEC
Q722	0TR102009AG	CHIP KRC102S SOT-23 TP KEC
Q723	0TR102009AG	CHIP KRC102S SOT-23 TP KEC
Q725	0TR102009AG	CHIP KRC102S SOT-23 TP KEC
Q726	0TR102009AG	CHIP KRC102S SOT-23 TP KEC
Q727	0TR102009AG	CHIP KRC102S SOT-23 TP KEC
Q728	0TR102009AG	CHIP KRC102S SOT-23 TP KEC
Q801	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q901	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q903	0TR387500AA	CHIP 2SC3875S(ALY) KEC
Q904	0TR387500AA	CHIP 2SC3875S(ALY) KEC
<b>DIODE</b>		
D1	0DD181009AB	KDS181 TP KEC - 85V - - - 300M
D2	0DD181009AB	KDS181 TP KEC - 85V - - - 300M
D601	0DD181009AB	KDS181 TP KEC - 85V - - - 300M
D602	0DD181009AB	KDS181 TP KEC - 85V - - - 300M
D701	0DD181009AB	KDS181 TP KEC - 85V - - - 300M
D702	0DD181009AB	KDS181 TP KEC - 85V - - - 300M
D801	0DD181009AB	KDS181 TP KEC - 85V - - - 300M
D802	0DD181009AB	KDS181 TP KEC - 85V - - - 300M
D805	0DD181009AB	KDS181 TP KEC - 85V - - - 300M
LD1	0DL112100AB	LED,SM3411(DL-11S2GN1) BK Y-GREEN
ZD101	0DZ330009BA	ZENER,HZT33(TP) HITACHI
ZD211	0DZRM00178A	ZENER,UDZS TE-17 5.1B ROHM R/TP SMD
ZD700	0DZRM00178A	ZENER,UDZS TE-17 5.1B ROHM R/TP SMD
<b>CAPACITOR</b>		
C17	0CE107SF6DC	100UF MVG 16V M
C20	0CE107SF6DC	100UF MVG 16V M
C21	0CE106SF6DC	10UF MVG 16V 20%
C24	0CE107SF6DC	100UF MVG 16V M
C25	0CE227VF6DC	220UF MV 16V 20%
C60	0CK224DF56A	220000PF 2012 16V 10%
C63	0CE476SF6DC	47UF MVG 16V M
C69	0CE105VK6DC	1UF MV 50V 20%
C101	0CE476DH618	47UF STD 25V 20%



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LOCA. NO	PART NO	DESCRIPTION
C105	0CE106DK618	10UF STD 50V M
C107	0CE108DD618	1000UF STD 10V M
C113	0CE105DK618	1UF STD 50V M
C115	0CE107DF618	100UF STD 16V M
C209	0CE225VK6DC	2.2UF MV 50V 20%
C214	0CE476SF6DC	47UF MVG 16V M
C217	0CE106SF6DC	10UF MVG 16V 20%
C220	0CE106SF6DC	10UF MVG 16V 20%
C221	0CE106SF6DC	10UF MVG 16V 20%
C302	0CE476SF6DC	47UF MVG 16V M
C323	0CE106SF6DC	10UF MVG 16V 20%
C331	0CK224DF56A	220000PF 2012 16V 10%
C332	0CK224DF56A	220000PF 2012 16V 10%
C333	0CK224DF56A	220000PF 2012 16V 10%
C334	0CK224DF56A	220000PF 2012 16V 10%
C335	0CK224DF56A	220000PF 2012 16V 10%
C336	0CK224DF56A	220000PF 2012 16V 10%
C347	0CK224DF56A	220000PF 2012 16V 10%
C354	0CK224DF56A	220000PF 2012 16V 10%
C361	0CE105CK636	1UF SHL,SD 50V M
C362	0CE105CK636	1UF SHL,SD 50V M
C363	0CE105CK636	1UF SHL,SD 50V M
C364	0CE105CK636	1UF SHL,SD 50V M
C365	0CK224DF56A	220000PF 2012 16V 10%
C406	0CE476SF6DC	47UF MVG 16V M
C418	0CE107SF6DC	100UF MVG 16V M
C493	0CE106SF6DC	10UF MVG 16V 20%
C494	0CE107SF6DC	100UF MVG 16V M
C495	0CE107SF6DC	100UF MVG 16V M
C610	0CE107DF618	100UF STD 16V M
C614	0CE107DF618	100UF STD 16V M
C618	0CK224DF56A	220000PF 2012 16V 10%
C619	0CK224DF56A	220000PF 2012 16V 10%
C620	0CK224DF56A	220000PF 2012 16V 10%
C621	0CK224DF56A	220000PF 2012 16V 10%
C622	0CE476DF618	47UF STD 16V M
C631	0CE106DF618	10UF STD 16V M
C632	0CE106DF618	10UF STD 16V M
C633	0CE335DK618	3.3UF STD 50V 20%
C635	0CE107DF618	100UF STD 16V M
C638	0CE107DF618	100UF STD 16V M
C639	0CE107DF618	100UF STD 16V M
C640	0CE477DF618	470UF STD 16V 20%
C643	0CE477DF618	470UF STD 16V 20%
C644	0CE107DF618	100UF STD 16V M
C645	0CE107DH618	100UF STD 25V M
C647	0CE225DK618	2.2UF STD 50V 20%
C648	0CE225DK618	2.2UF STD 50V 20%
C649	0CQ1031N509	0.01U 100V K
C650	0CE477DF618	470UF STD 16V 20%
C651	0CE476DF618	47UF STD 16V M
C652	0CQ1031N509	0.01U 100V K

LOCA. NO	PART NO	DESCRIPTION
C653	0CE107DF618	100UF STD 16V M
C654	0CK224DF56A	220000PF 2012 16V 10%
C655	0CK224DF56A	220000PF 2012 16V 10%
C801	0CE476DK618	47UF STD 50V M
C802	0CE477DF618	470UF STD 16V 20%
C803	0CE477DF618	470UF STD 16V 20%
C804	0CE477DF618	470UF STD 16V 20%
C805	0CE477DF618	470UF STD 16V 20%
C806	0CE477DF618	470UF STD 16V 20%
C807	0CE477DF618	470UF STD 16V 20%
C808	0CE227DH618	220UF STD 25V M
C814	0CE107DH618	100UF STD 25V M
C815	0CE107DH618	100UF STD 25V M
C817	0CE475DK618	4.7UF STD 50V 20%
C902	0CE106SF6DC	10UF MVG 16V 20%
C904	0CE106SF6DC	10UF MVG 16V 20%
C906	0CE107SF6DC	100UF MVG 16V M
C909	0CE107SF6DC	100UF MVG 16V M
C911	0CE107SF6DC	100UF MVG 16V M
C915	0CE106SF6DC	10UF MVG 16V 20%
C935	0CE107SF6DC	100UF MVG 16V M
C939	0CE476SF6DC	47UF MVG 16V M
C946	0CE476SF6DC	47UF MVG 16V M
C970	0CE107SF6DC	100UF MVG 16V M
<b>FUSE</b>		
F101	0FS6300B84B	FUSE,SLOW BLOW 630MA 250V
F102	131-096F	FUSE,FAST BLOW MICRO 125V 2.5A
<b>JACK</b>		
JA201	6612VAH001A	JACK,PHONE HEC3900-010110 HOSIDEN DC (7)
JA203	6613V00008F	JACK ASSY,PMJ014F E/P(ST)+S-VH
JA204	6612VJH008D	JACK,RCA PJ6063D DVD IN 3P GN-
JA205A	380-336E	JACK,RCA WA6013E RCA 1P WH GOL
JA205B	380-336F	JACK,RCA WA6013E RCA RED 1P GO
JA206	6612VCH003B	JACK,PHONE PEJ012C H=6.5 STEREO
<b>COIL &amp; TRANSFORMER</b>		
L102	0LA0272K139	INDUCTOR,27UH K
L802	6140VB0004B	COIL,CHOKE 26UH 1UEWPHY 22.5TURN
L803	6140VB0004A	COIL,CHOKE 9.5UH 1UEWPHY 13.5TURN
T801	6170VTCA30A	TRANSFORMER,SMPS[COIL] EPC 13-Z 320UH
<b>RESISTOR</b>		
R219	0RD1200H609	120 OHM 1/2 W 5.00% TA52
R220	0RD1200H609	120 OHM 1/2 W 5.00% TA52
R803	0RHZVTA001A	0.025 OHM 1W 2% 2512 R/TP, IRC
R805	0RHZVTA001A	0.025 OHM 1W 2% 2512 R/TP, IRC
RA901	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH
RA902	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH
RA903	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH
RA904	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH

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	CE : Electrolytic	RN : Metal Film
		RF : Fusible

LOCA. NO	PART NO	DESCRIPTION
RA905	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH
RA906	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH
RA907	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH
RA908	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH
RA909	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH
RA910	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH
RA911	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH
RA912	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH
RA926	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH
RA927	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH
RA928	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH
RA929	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH
RA930	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH
RA931	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OH

### FILTER & CRYSTAL

L1	6210TCE001G	FILTER,EMC HH-1M3216-501
L3	6210TCE001G	FILTER,EMC HH-1M3216-501
L4	6210TCE001G	FILTER,EMC HH-1M3216-501
L101	6210TCE001G	FILTER,EMC HH-1M3216-501
L103	6210TCE001G	FILTER,EMC HH-1M3216-501
L105	6210TCE001G	FILTER,EMC HH-1M3216-501
L106	6210TCE001G	FILTER,EMC HH-1M3216-501
L201	6210TCE001A	FILTER,EMC HB-1S2012-080JT
L202	6210TCE001A	FILTER,EMC HB-1S2012-080JT
L204	6210TCE001A	FILTER,EMC HB-1S2012-080JT
L205	6210TCE001A	FILTER,EMC HB-1S2012-080JT
L206	6210TCE001A	FILTER,EMC HB-1S2012-080JT
L207	6210TCE001G	FILTER,EMC HH-1M3216-501
L215	6210TCE001A	FILTER,EMC HB-1S2012-080JT
L216	6210TCE001A	FILTER,EMC HB-1S2012-080JT
L276	6210TCE001A	FILTER,EMC HB-1S2012-080JT
L277	6210TCE001A	FILTER,EMC HB-1S2012-080JT
L301	6210TCE001G	FILTER,EMC HH-1M3216-501
L302	6210TCE001G	FILTER,EMC HH-1M3216-501
L303	6210TCE001A	FILTER,EMC HB-1S2012-080JT
L304	6210TCE001G	FILTER,EMC HH-1M3216-501
L601	6210TCE001G	FILTER,EMC HH-1M3216-501
L602	6210TCE001G	FILTER,EMC HH-1M3216-501
L603	6210TCE001G	FILTER,EMC HH-1M3216-501
L604	6210TCE001G	FILTER,EMC HH-1M3216-501
L701	6210TCE001G	FILTER,EMC HH-1M3216-501
L801	6210TCE001G	FILTER,EMC HH-1M3216-501
L804	6210TCE001G	FILTER,EMC HH-1M3216-501
L805	6210TCE001G	FILTER,EMC HH-1M3216-501
L901	6210TCE001G	FILTER,EMC HH-1M3216-501
L902	6210TCE001G	FILTER,EMC HH-1M3216-501
L904	6210TCE001G	FILTER,EMC HH-1M3216-501
L905	6210TCE001G	FILTER,EMC HH-1M3216-501
L908	6210TCE001G	FILTER,EMC HH-1M3216-501
L911	6210TCE001G	FILTER,EMC HH-1M3216-501
L913	6210TCE001G	FILTER,EMC HH-1M3216-501

LOCA. NO	PART NO	DESCRIPTION
L917	6210TCE001G	FILTER,EMC HH-1M3216-501
L918	6210TCE001G	FILTER,EMC HH-1M3216-501
X1	156-A01P	RESONATOR,CRYSTAL HC49U 8.000MHZ 30
X301	6202VDT002E	RESONATOR,CRYSTAL SX-1SMD 20250000H
X601	156-A02M	RESONATOR,CRYSTAL HC49U 18.432MHZ 30P
X901	6202VDT002B	RESONATOR,CRYSTAL SX-1SMD 14.318MHZ

### MISCELLANEOUS

JA202	6630VGA001B	CONNECTOR,D-SUB 15PIN 2.2
PA001	6726VV0006D	REMOTE CONTROLLER RECEIVER,38.0KHZ
SP701	6908VB0001A	BUZZER,PKM13EPY-4002-B0
TU101	6700VNF019E	TUNER,TAFH-H001P LG NTSC FS.

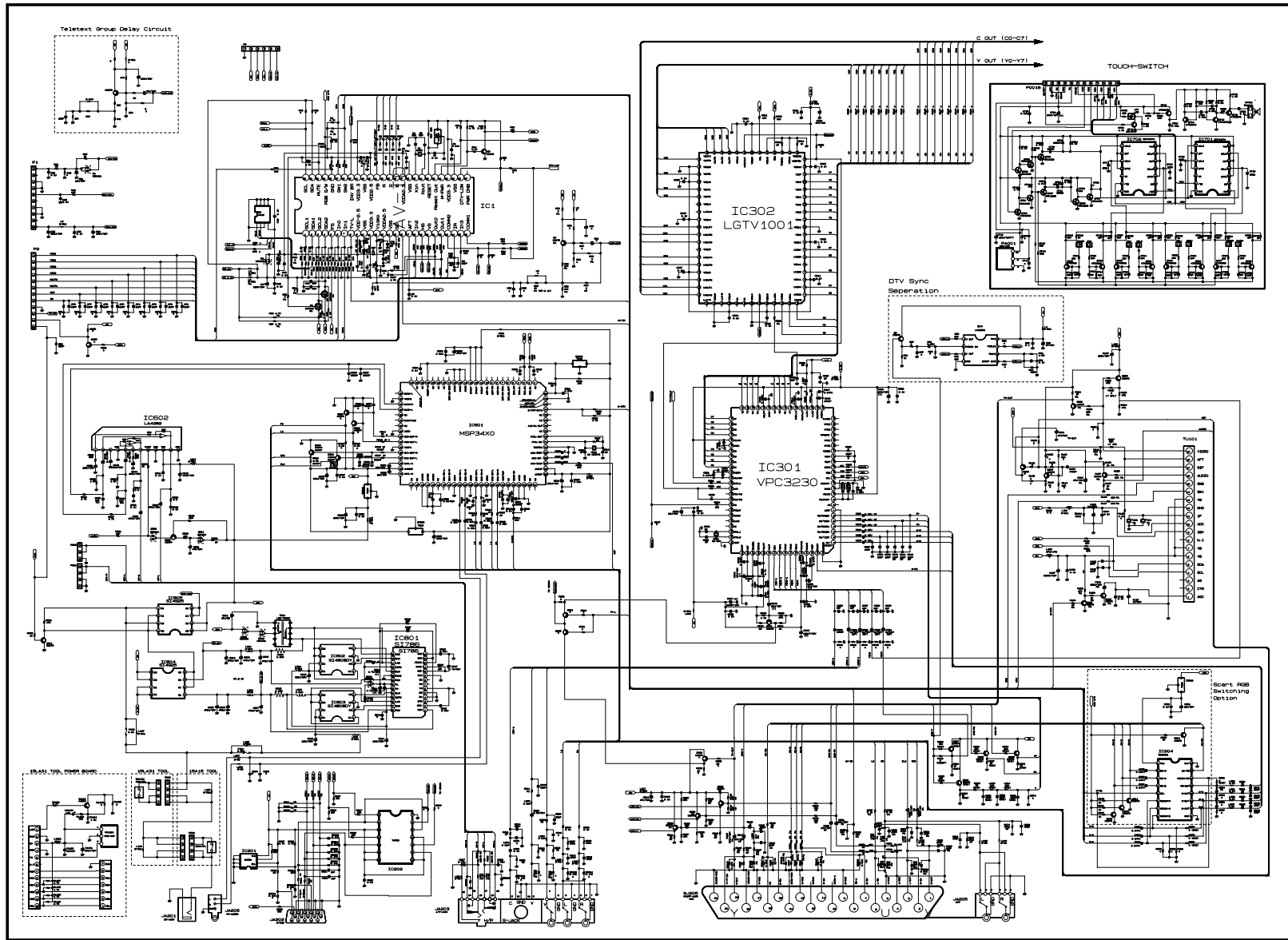
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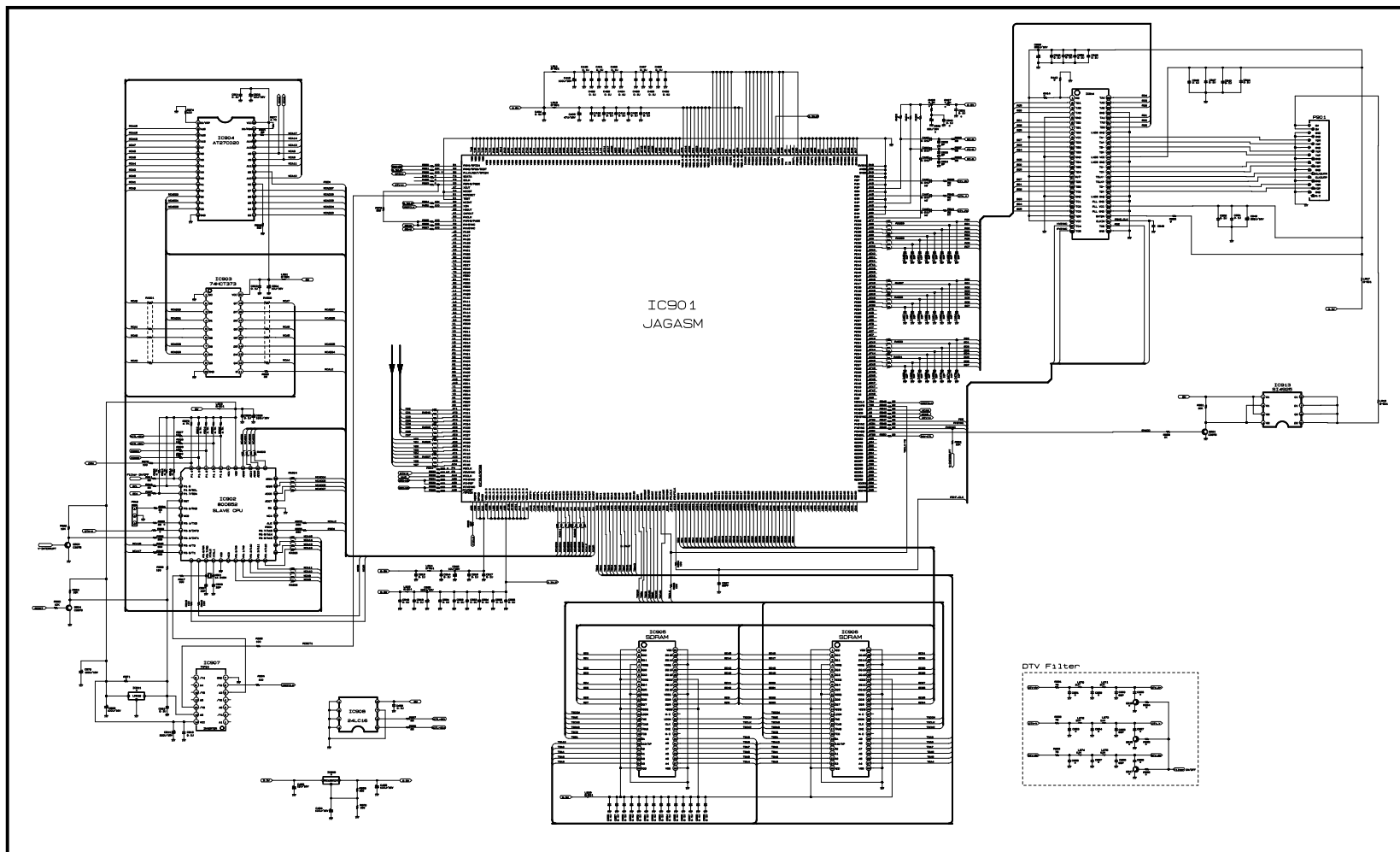
A1	3828VA0308N	MANUAL,OWNERS ML012A LN-15A15 LG
A2	6710V00082N	REMOTE CONTROLLER,ML012A STEREO
A3	6410VUH003A	POWER CORD,PS204-001 VOLEX UL/CSA 1800MM
A4	6634B00043B	ADAPTER,AC-DC SERATEC 12V 5.0A 60W SAB6012SE
A5	6851V00004D	CABLE ASSY,AUDIO TO AUDIO 2000MM(WHITE)
A6	6866VA9001A	CONNECTOR,D-SUB 2990-9C,AT,L1830,COOL GRAY



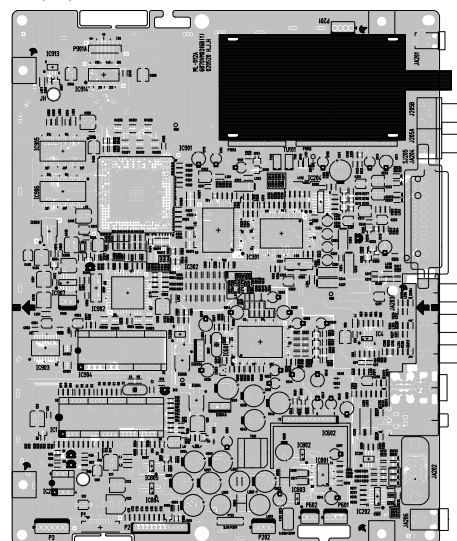
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